What is Claimed is:

1. A hardness tester for measuring a hardness of a tested object having a testing surface, comprising:

a supporting frame having a receiving chamber and an elongated guiding channel coaxially extended to communicate with said receiving chamber;

a driving axle slidably disposed in said receiving chamber of said supporting frame;

a penetrating pin, having a pin head, coaxially disposed in said guiding channel in a slidably movable manner to coaxially align with said driving axle for said pin head to penetrate on said testing surface of said tested object; and

a linear displacement device, comprising a transmission shaft movably disposed in said receiving chamber at a position universally contacting between said driving axle and said penetrating pin, and a displacement sensor supported at said transmission shaft, wherein when said driving axle is driven for applying a penetrating force to said penetrating pin through said transmission shaft, said linear sensor detects a linear displacement of said transmission shaft with respect to said penetrating pin for measuring said hardness of said tested object.

2. The hardness tester, as recited in claim 1, wherein said supporting frame comprises a hand-held casing defining said receiving chamber therein, a driving wheel rotatably mounted to said hand-held casing for applying said penetrating force on said driving axle, and a tubular guiding cylinder which is extended from said hand-held casing and defines said guiding channel, wherein an opening edge of said guiding cylinder is arranged for biasing against said testing surface of said tested object to guide said pin head of said penetrating pin to penetrated thereon.

3. The hardness tester, as recited in claim 2, wherein said opening edge of said guiding cylinder has a flat surface for substantially biasing against said testing surface of said tested object in such a manner that said opening edge of said guiding

cylinder functions as a guiding surface to guide said pin head of said penetrating pin for perpendicularly penetrating on said testing surface of said tested object.

4. The hardness tester, as recited in claim 1, wherein said displacement sensor comprises a linear sensor circuit supported within said receiving chamber and first and second linear sensor terminals electrically coupling with said sensor circuit and said transmission shaft respectively in such a manner that when said transmission shaft is driven to move within said receiving chamber, said linear sensor circuit detects said linear displacement of said transmission shaft with respect to a positioning differentiation between said linear first and second terminals.

5. The hardness tester, as recited in claim 3, wherein said displacement sensor comprises a linear sensor circuit supported within said receiving chamber and first and second linear sensor terminals electrically coupling with said sensor circuit and said transmission shaft respectively in such a manner that when said transmission shaft is driven to move within said receiving chamber, said linear sensor circuit detects said linear displacement of said transmission shaft with respect to a positioning differentiation between said linear first and second terminals.

6. The hardness tester, as recited in claim 1, wherein said transmission shaft has a driven end universally contacting with said driving axle and a driving end universally contacting with said penetrating pin, wherein the transmission shaft is adapted for transmitting said penetrating force from said driving shaft as a pushing force to slidably push said penetrating pin to coaxially slide along said guiding channel for said pin head of said penetrating pin penetrating on said testing surface of said tested object.

7. The hardness tester, as recited in claim 3, wherein said transmission shaft has a driven end universally contacting with said driving axle and a driving end universally contacting with said penetrating pin, wherein the transmission shaft is adapted for transmitting said penetrating force from said driving shaft as a pushing force to slidably push said penetrating pin to coaxially slide along said guiding channel for said pin head of said penetrating pin penetrating on said testing surface of said tested object.

8. The hardness tester, as recited in claim 5, wherein said transmission shaft has a driven end universally contacting with said driving axle and a driving end universally contacting with said penetrating pin, wherein the transmission shaft is adapted for transmitting said penetrating force from said driving shaft as a pushing force to slidably push said penetrating pin to coaxially slide along said guiding channel for said pin head of said penetrating pin penetrating on said testing surface of said tested object.

9. The hardness tester, as recited in claim 1, further comprising a force sensor supported within said receiving chamber to couple with said driving axle for detecting said penetrating force thereon, wherein said force sensor comprises a force sensor circuit supported at said receiving chamber and first and second force sensor terminals electrically coupling with said force sensor circuit and said driving axle respectively, in such a manner that said force sensor circuit is adapted for detecting said penetrating force on said driving axle with respect to a positioning differentiation between said first and second force sensor terminals.

10. The hardness tester, as recited in claim 3, further comprising a force sensor supported within said receiving chamber to couple with said driving axle for detecting said penetrating force thereon, wherein said force sensor comprises a force sensor circuit supported at said receiving chamber and first and second force sensor terminals electrically coupling with said force sensor circuit and said driving axle respectively, in such a manner that said force sensor circuit is adapted for detecting said penetrating force on said driving axle with respect to a positioning differentiation between said first and second force sensor terminals.

11. The hardness tester, as recited in claim 5, further comprising a force sensor supported within said receiving chamber to couple with said driving axle for detecting said penetrating force thereon, wherein said force sensor comprises a force sensor circuit supported at said receiving chamber and first and second force sensor terminals electrically coupling with said force sensor circuit and said driving axle respectively, in such a manner that said force sensor circuit is adapted for detecting said penetrating force on said driving axle with respect to a positioning differentiation between said first and second force sensor terminals.

12. The hardness tester, as recited in claim 8, further comprising a force sensor supported within said receiving chamber to couple with said driving axle for

detecting said penetrating force thereon, wherein said force sensor comprises a force sensor circuit supported at said receiving chamber and first and second force sensor terminals electrically coupling with said force sensor circuit and said driving axle respectively, in such a manner that said force sensor circuit is adapted for detecting said penetrating force on said driving axle with respect to a positioning differentiation between said first and second force sensor terminals.

13. The hardness tester, as recited in claim 3, further comprising a retaining frame extended from said supporting frame, wherein said retaining frame has a supporting platform adjustably aligned with said pin head of said penetrating pin for substantially retaining said opening edge of said guiding channel at said testing surface of said tested object.

14. The hardness tester, as recited in claim 5, further comprising a retaining frame extended from said supporting frame, wherein said retaining frame has a supporting platform adjustably aligned with said pin head of said penetrating pin for substantially retaining said opening edge of said guiding channel at said testing surface of said tested object.

15. The hardness tester, as recited in claim 8, further comprising a retaining frame extended from said supporting frame, wherein said retaining frame has a supporting platform adjustably aligned with said pin head of said penetrating pin for substantially retaining said opening edge of said guiding channel at said testing surface of said tested object.

16. The hardness tester, as recited in claim 12, further comprising a retaining frame extended from said supporting frame, wherein said retaining frame has a supporting platform adjustably aligned with said pin head of said penetrating pin for substantially retaining said opening edge of said guiding channel at said testing surface of said tested object.

17. The hardness tester, as recited in claim 13, wherein said retaining frame comprises a retaining arm having a L-shaped extended from said supporting frame and a supporting member which defines said supporting platform thereon and has a spherical bottom portion mounted at a free end of said retaining arm in a rotatably movable manner such that said opening edge of said guiding channel and said supporting platform are

adapted for substantially biasing against said tested object to align said pin head of said penetrating pin with said testing surface of said tested object.

18. The hardness tester, as recited in claim 14, wherein said retaining frame comprises a retaining arm having a L-shaped extended from said supporting frame and a supporting member which defines said supporting platform thereon and has a spherical bottom portion mounted at a free end of said retaining arm in a rotatably movable manner such that said opening edge of said guiding channel and said supporting platform are adapted for substantially biasing against said tested object to align said pin head of said penetrating pin with said testing surface of said tested object.

19. The hardness tester, as recited in claim 15, wherein said retaining frame comprises a retaining arm having a L-shaped extended from said supporting frame and a supporting member which defines said supporting platform thereon and has a spherical bottom portion mounted at a free end of said retaining arm in a rotatably movable manner such that said opening edge of said guiding channel and said supporting platform are adapted for substantially biasing against said tested object to align said pin head of said penetrating pin with said testing surface of said tested object.

20. The hardness tester, as recited in claim 16, wherein said retaining frame comprises a retaining arm having a L-shaped extended from said supporting frame and a supporting member which defines said supporting platform thereon and has a spherical bottom portion mounted at a free end of said retaining arm in a rotatably movable manner such that said opening edge of said guiding channel and said supporting platform are adapted for substantially biasing against said tested object to align said pin head of said penetrating pin with said testing surface of said tested object.